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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/653,990	09/04/2003	Jyh-Rong Sheu	SHEU3007/EM	4507

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EXAMINER	
LIN, JAMES	

ART UNIT	PAPER NUMBER
1792	

NOTIFICATION DATE	DELIVERY MODE
08/13/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/653,990	SHEU ET AL.	
	Examiner	Art Unit	
	Jimmy Lin	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 June 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 5-6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto et al. (WO 02/41348, references made are to the English equivalent U.S. Patent No. 7,161,285) in view of Kobayashi et al. (U.S. Publication No. 2002/0006558).

Okamoto discloses a method of making a field emission cold cathode used in a flat display device such as a field emission display (FED), wherein an emitter is made from carbon nanotubes (CNTs) (col. 1, lines 6-15). An adhesive sheet 221 is brought into contact with a CNT film 212. Pressing of the sheet activates the adhesion and adhibits the sheet to the CNT film. The adhesive sheet is then lifted off to cause the CNTs on the surface to be pulled into an upright alignment state (col. 26, line 60-col. 27, line 15). This method increases the number of CNTs exposed on the FED (Fig. 17A-17C). Particulate impurities may be removed upon lifting off of the adhesive material.

Okamoto does not explicitly teach that an activator is coated on the surface of the CNT film and that the adhesive sheet is coated on the activator. However, Kobayashi teaches that it was well known to have used a layer containing a release agent to aid the removal of a film [0254]. Because Okamoto teaches the need to remove the adhesive sheet and because Kobayashi teaches that the use of a release agent was operable to aid the removal of a film, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed a layer having a release agent (i.e. an activator) onto the FED of Okamoto and to have applied an adhesive sheet onto the release agent with a reasonable expectation of success. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945).

Claim 6: The activator is a release agent.

Claim 7: The adhesive material is either organic or inorganic.

Claim 8: Okamoto teaches that a pressing machine can be used to press the adhesive sheet (col. 26, lines 64-67).

Claim 9: Okamoto teaches that the adhesive sheet sticks to the CNTs (Figs. 17A-17C).

Claim 10: Okamoto teaches that the CNT is set between a cathode plate 211 and a gate 216 in a triode structure (Fig 17).

3. Claims 1 and 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto '348 in view of O'Connor et al. (U.S. Publication No. 2002/0112961).

Okamoto is discussed above. Okamoto teaches that the adhesive sheet is pressure-sensitive rather than a heat-sensitive adhesive and, thus, does not explicitly teach heating the adhesive sheet for adhibitting the surface. However, O'Connor teaches that pressure-sensitive tapes and heat-activated tapes were operable equivalents [0072]. The teachings of O'Connor would have presented a recognition of equivalency in the prior art and would have presented strong evidence of obviousness in substituting one for the other in a process of selecting an operable adhesive tape. The substitution of equivalents requires no express suggestion. See MPEP 2144.06.II. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a heat-activated adhesive sheet, as opposed to a pressure-sensitive sheet, and to have heated the adhesive sheet for adhibitting the surface with a reasonable expectation of success.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto '348 in view of Kobayashi '558 as applied to claim 5 above, and further in view of Bouchard et al. (U.S. Publication No. 2002/0074932; for better quality drawings of the Figures, see related U.S. Patent No. 7,276,844).

Okamoto does not explicitly teach that the adhesive material is selected from the group consisting of a hot melt glue, a soluble material, an organic material, an inorganic material and a strippable material. In fact, Okamoto does not teach any materials as exemplary adhesive materials. Accordingly, Bouchard teaches that it was well known to have used a low melting

acrylic polymer (i.e., an organic material) as an adhesive material in the art of FED devices ([0074]; Figs. 8a-8f). Because Bouchard teaches that such materials were operable in the art, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a low melting acrylic polymer as the particular adhesive material of Okamoto with a reasonable expectation of success.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto '348 in view of O'Connor '961 as applied to claim 1 above, and further in view of Bouchard '932 for substantially the same reasons as discussed immediately above.

Response to Arguments

6. Applicant's arguments filed 6/8/2008 have been fully considered but they are not persuasive.

Applicant argues Okamoto, Kobayashi, and O'Connor do not teach the step of removing impurities on the surface of the CNT-FED by lifting the adhesive material off. However, Okamoto does teach that particulate impurities can be removed when lifting the adhesive material off (col. 27, lines 8-15). Thus, the applied references teach all of the claim limitations.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is (571)272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jimmy Lin/
Examiner, Art Unit 1792

/Timothy H Meeks/
Supervisory Patent Examiner, Art Unit 1792